CLAIMS

1. A method of observing sea ice, wherein

an ice thickness/drifting velocity observation of sea ice by using an ice thickness measurement sonar and a current meter moored into the sea and a sea ice observation by a high-resolution airborne SAR are synchronously performed,

a correlation between a draft profile of sea ice passing over the sonar and an SAR backscattering coefficient profile is calculated, and

an ice draft of desired sea ice is calculated from the relational expression and an SAR backscattering coefficient.

2. A method of observing sea ice according to claim 1, wherein, as the SAR backscattering coefficient, a backscattering coefficient of L-band HV polarization is used.

3. A method of observing sea ice according to claim 1, wherein

a backscattering coefficient of X-band VV polarization is used as the SAR backscattering coefficient to detect thin ice having a thickness of not more than approximately 10 cm.

4. A method of observing sea ice according to claim 3, wherein

a ratio of a backscattering coefficient of X-band VV polarization to a backscattering coefficient of X-band HH polarization is used.

5. A program for observing sea ice, wherein

from data related to an ice thickness and a drifting velocity of sea ice and SAR backscattering coefficient profile data,

a relational expression between an ice draft profile of the sea ice and an SAR backscattering coefficient profile is calculated, and

an ice draft of desired sea ice is calculated from the relational expression and an SAR backscattering coefficient.

6. A program for observing sea ice according to claim 5, wherein, as the SAR backscattering coefficient, a backscattering coefficient of L-band HV polarization is used.

7. A program for observing sea ice according to claim 5, wherein

a target is determined as open water when a backscattering coefficient of X-band VV polarization is not more than a predetermined value, and the target is determined as thin ice or thick ice when the backscattering coefficient of X-band VV polarization is not less than a predetermined value, and

the target is determined as thick ice when a backscattering coefficient of X-band HH polarization is not less than a predetermined value or when a backscattering coefficient of L-band HH polarization is not less than a predetermined value.

8. A program for observing sea ice according to claim 7, wherein

the target is determined as thin ice when the backscattering coefficient of X-band VV polarization is larger than the backscattering coefficient of X-band HH polarization by not less than a predetermined value.

9. A recording medium for a program for observing sea ice, wherein

the medium stores a program which calculates, from data related to an ice thickness and a drifting velocity of sea ice and SAR backscattering coefficient profile data,

a relational expression between an ice draft profile of the sea ice and an SAR backscattering coefficient profile and

calculates an ice draft of desired sea ice from the relational expression and an SAR backscattering coefficient.

10. A recording medium for a program for observing sea ice according to claim 9, wherein

as the SAR backscattering coefficient, a backscattering coefficient of L-band HV polarization is used.

11. A recording medium for a program for observing sea ice according to claim 9, wherein

a target is determined as open water when a backscattering coefficient of X-band VV polarization is not more than a predetermined value, and the target is determined as thin ice or thick ice when the backscattering coefficient of X-band VV polarization is not less than a predetermined value, and

the target is determined as thick ice when a backscattering coefficient of X-band HH polarization is not less than a predetermined value or when a backscattering coefficient of L-band HH polarization is not less than a predetermined value.

12. A recording medium for a program for observing sea ice according to claim 11, wherein

the target is determined as thin ice when the backscattering coefficient of X-band VV polarization is larger than the backscattering coefficient of X-band HH polarization by not less than a predetermined value.

13. An apparatus for observing sea ice comprising

a program which calculates, from data related to an ice thickness and a drifting velocity of sea ice and SAR backscattering coefficient profile data,

a relational expression between an ice draft profile of the sea ice and an SAR backscattering coefficient profile and

calculates an ice draft of desired sea ice from the relational expression and an SAR backscattering coefficient.

14. An apparatus for observing sea ice according to claim 13, wherein

as the SAR backscattering coefficient, a backscattering coefficient of L-band HV polarization is used.

15. An apparatus for observing sea ice according to claim 13, wherein

a target is determined as open water when a backscattering coefficient of X-band VV polarization is not more than a predetermined value, and the target is determined as thin ice or thick ice when the backscattering coefficient of X-band VV polarization is not less than a predetermined value, and

the target is determined as thick ice when a backscattering coefficient of X-band HH polarization is not less than a predetermined value or when a backscattering coefficient of L-band HH polarization is not less than a predetermined value.

16. An apparatus for observing sea ice according to claim 15, wherein

the target is determined as thin ice when the backscattering coefficient of X-band VV polarization is larger than the backscattering coefficient of X-band HH polarization by not less than a predetermined value.